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New synonymies in the order Urodela Duméril, 1805 (Amphibia, Batrachia), with comments on the use of the formula “new taxon” to designate new nomina

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Dubois & Raffaëlli (2012) recently published a new comprehensive taxonomy and nomenclature of the recent salamanders and newts of the world. Almost coincidentally, Wake (2012) published a revised classification of the salamander family *PLETHODONTIDAE*. Three family-series (or family-group) nomina (scientific names) were proposed as new in both papers. According to the date appearing in *Zootaxa*, the latter paper was published on 18 September 2012, whereas, according to the printer Frédéric Paillart (personal communication), the former was mailed to subscribers of *Alytes* on 24 October 2012. Therefore the new nomina that are common to both papers are valid in the latter, and invalid junior synonyms and homonyms in the former. I here present complete synonymic lists for these three nomina, as well as a few additional comments.

The three nomina at stake, and the taxa they designate, already have a rather complex history. The taxa were first recognized, with their current contents, by Vieites *et al.* (2007: Online Supporting Information), under the following nomina: genus *Aneides*, genus *Batrachoseps* and “supergenous *Hydromantes*”. Dubois (2008: 70–75) showed in detail why this nomenclature was incorrect under the *Code* (Anonymous 1999), which does not recognize a rank “supergenous”, and poorly informative for being pseudoranked: different ranks were afforded to taxa that were considered parordinate (“sister-taxa”) under the phylogenetic hypothesis adopted. It was shown that different nomenclatures could be used to account for this phylogenetic hypothesis, and to make this quite clear three examples of possible nomenclatures for this family were provided. These three nomenclatures included taxa that were then still unnamed. However, Dubois (2008: 71) refrained from providing available nomina for these taxa under the Rules of the *Code*, leaving this opportunity to the authors working on this group, and wrote: “Tribal nomina between quotation marks are informal nomina without availability in zoological nomenclature. They are mentioned here just to show what the nomenclature of this family could be if the erection of these tribes was judged useful by specialists of this group. If it were the case, these nomina should be formally published with a diagnosis and a statement of intention of creating a new nomen, as, for the time being, no available nomina exist to name these tribes.”

Vieites *et al.* (2011: 633) followed the latter advice, but only partially: they used these three nomina (*ANEIDINI*, *BATRACHOSEPINI* and *HYDROMANTINI*) as valid and showed their intention of creating new nomina by adding the formula “new taxon” after them. However, they failed to follow the second part of the advice: as they did not provide any diagnosis for these “new taxa”, the three nomina remained *nomina nuda* (*gymnomyns*) in their work. Subsequently, Jockush *et al.* (2012: 1) used again the nomen *BATRACHOSEPINI*, but still as a *gymnomyn*, as they still did not diagnose the taxon.

When they prepared their ergotaxonomy of the salamanders, Dubois & Raffaëlli (2012) were again confronted to the absence of available nomina for these three taxa and had no choice, although it was not their original intention (Dubois 2008), but to propose formal nomina and diagnoses for these taxa – thus hoping to put an end to an uncomfortable nomenclatural situation. The publication by Wake (2012) of the same three nomina with formal diagnoses did the same and has priority.

The rather complex nomenclatural history of these three nomina appears in their formal synonymies given below. In these, the following terms are used: *hoplonym* (Dubois 2000) for available nomen (concept without technical designation in the *Code*); *anoplonym* (Dubois 2000) for unavailable nomen (concept without technical designation in the *Code*); *gymnomyn* (Dubois 2000) for *nomen nudum* in the *Code* (nomen unavailable for failing to follow Articles 12 and/or 13); *atelonym* (Dubois 2011) for nomen unavailable under the *Code* for failing to follow Articles 1, 3, 10, 11, 14, 15, 16, 19, 20, 24, 32, 33, 34, 50 and/or 79 (concept without technical designation in the *Code*); *nucleogenus* (Dubois 2005a) for *type genus* under the *Code*; and *isonym* (Dubois 2000) for *objective synonym* in the *Code*.

Tribus *ANEIDINI* Wake, 2012

“*ANEIDINI*” Dubois, 2008: 72 and “*ANEIDITOI*” Dubois, 2008: 74. **Anoplonym** (gymnonym and atelonym) because of deliberate absence of both a diagnosis and the mention of intention to erect a new nomen.

“*ANEIDINI*” Vieites, Nieto Román, Wake & Wake, 2011: 11. **Anoplonym** (gymnonym) because of absence of diagnosis. *ANEIDINI* Wake, 2012: 75. **Hoplonym. Nucleogenus**, by original designation (Wake 2012: 79): *Aneides* Baird, 1851.

ANEIDINI Dubois & Raffaëlli, 2012: 117. **Hoplonym. Nucleogenus**, by original designation (Dubois & Raffaëlli 2012: 160): *Aneides* Baird, 1851. **New synonym** (isonym).

Tribus *BATRACHOSEPINI* Wake, 2012

“*BATRACHOSEPINI*” Dubois, 2008: 71 and “*BATRACHOSEPITA*” Dubois, 2008: 73. **Anoplonym** (gymnonym and atelonym) because of deliberate absence of both a diagnosis and the mention of intention to erect a new nomen.

“*BATRACHOSEPINI*” Vieites, Nieto Román, Wake & Wake, 2011: 11. **Anoplonym** (gymnonym) because of absence of diagnosis.

“*BATRACHOSEPINI*” Jockush, Martínez-Solano, Hansen & Wake, 2012: 1. **Anoplonym** (gymnonym and atelonym) because of absence of both a diagnosis and the mention of intention to erect a new nomen.

BATRACHOSEPINI Wake, 2012: 75. **Hoplonym. Nucleogenus**, by original designation (Wake 2012: 76): *Batrachoseps* Bonaparte, 1839.

BATRACHOSEPINA Dubois & Raffaëlli, 2012: 115. **Hoplonym. Nucleogenus**, by original designation (Dubois & Raffaëlli 2012: 157): *Batrachoseps* Bonaparte, 1839. **New synonym** (isonym).

Tribus *HYDROMANTINI* Wake, 2012

“*HYDROMANTINI*” Dubois, 2008: 72 and “*HYDROMANTINA*” Dubois, 2008: 74. **Anoplonym** (gymnonym and atelonym) because of deliberate absence of both a diagnosis and the mention of intention to erect a new nomen.

“*HYDROMANTINI*” Vieites, Nieto Román, Wake & Wake, 2011: 11. **Anoplonym** (gymnonym) because of absence of diagnosis.

HYDROMANTINI Wake, 2012: 75. **Hoplonym. Nucleogenus**, by original designation (Wake 2012: 80): *Hydromantes* Gistel, 1848.

HYDROMANTINA Dubois & Raffaëlli, 2012: 118. **Hoplonym. Nucleogenus**, by original designation (Dubois & Raffaëlli 2012: 156): *Hydromantes* Gistel, 1848. **New synonym** (isonym).

A few words are in order regarding the nomen *KARSENIINI* Dubois & Raffaëlli, 2012. This nomen was first proposed informally by Dubois (2008: 72, 74) under the spellings “*KARSENIINI*” and “*KARSENIINA*”. It was then introduced formally by Dubois & Raffaëlli (2012: 117, 118) as *KARSENIINI* and *KARSENIINA*, respectively for a tribe and a subtribe of the subfamily *PLETHODONTINAE* Gray, 1850. In this work, the tribe *KARSENIINI* also included a subtribe *HYDROMANTINA*. As both nomina were new, Dubois & Raffaëlli (2012: 118) chose to give precedence to the shortest one (*KARSENIINI*) for reasons given by Dubois & Raffaëlli (2009: 17–22). However, since Wake’s (2012) nomen *HYDROMANTINI* was published first, this priority is reversed: if no subtribes are recognized in this tribe, its valid nomen is *HYDROMANTINI* Wake, 2012, whereas if subtribes are recognized they must be called *HYDROMANTINA* Wake, 2012 and *KARSENIINA* Dubois & Raffaëlli, 2012.

Additional nomenclatural problems exist in Wake’s (2012) paper regarding the nomenclature of class-series taxa of **AMPHIBIA** (class, suborder and order). They were already discussed in detail in Dubois (2004, 2006a, 2009) and Dubois & Raffaëlli (2012). In particular, there can be no justification for the use of the nomen “**CAUDATA** Fischer von Waldheim, 1813” for the order of salamanders, not only because the authorship and date of this nomen are wrong (the valid ones being **CAUDATA** Duméril, 1805), but also because (1) this nomen is a junior invalid homonym of **CAUDATA** Scopoli, 1777, which designates a much more comprehensive taxon, (2) it was rejected in favour of **URODELA** Duméril, 1805 by the first-reviser action of Zittel (1888), and (3) both nomina **CAUDATA** Duméril, 1805 and **URODELA** Duméril, 1805 have been widely used for this taxon in the literature since 1900, so that none of them qualifies as a “nomen protectum” or sozonym: the order must therefore be known as **URODELA** Duméril, 1805 (for details see Dubois & Raffaëlli 2012).

Regarding the relative priority of the nomina *BOLITOGLOSSIDAE* and *HEMIDACTYLIIDAE*, both introduced in the same publication by Hallowell (1856: 11), Wake (2012: 76) wrote: “*I select Hemidactyliinae for the name of this subfamily, following Dubois (2005), Vieites et al. (2011), and Blackburn and Wake (2011)*”. This writing is incorrect, as the formula

“*I select*” seems to imply a choice, whereas in this case no choice was possible as the priority had been fixed by the first-reviser action of Dubois (2005b: 19), and first-reviser actions are irreversible nomenclatural acts.

This case also allows to make some additional comments on another nomenclatural problem which has more generality.

The use of the formula “new taxon” to designate new nomina

Both Vieites *et al.* (2011) and Wake (2012) proposed these nomina as new under the form “Tribe *ANEIDINI* new taxon”. This formulation, which appears nowadays in many publications, is inappropriate and wrong here. It is based on the confusion between taxon and nomen, a confusion that has become common after the works of de Queiroz & Gauthier (1990, 1994) and all the subsequent papers dealing with the *Phylocode* (Cantino & de Queiroz, 2010; for detailed comments, see e.g. Dubois 2005a). It may therefore be useful to insist once again on the difference between the two words. A *taxon* is a *classificatory unit*, i.e., a *concept* or hypothesis adopted by a taxonomist under a given taxonomic paradigm and within the frame of a given classification or ergotaxonomy (Dubois 2005a). In contrast, a *nomen* (scientific name) is not a concept: it is nothing but a *label* meant at designating unambiguously a given taxon within a given ergotaxonomy. Both aspects are not necessarily connected. A taxon may well be erected as new, characterized or diagnosed, but not named. This is a very frequent situation indeed in taxonomy. And a nomen may well be introduced as “new” but without being attached to a taxon, for missing an association with characters that would make it nomenclaturally available (it is then a gymnymon or nomen nudum). This is another quite frequent situation, especially nowadays with the increase of taxonomic papers adopting a “phylogenetic taxonomy” approach and failing to follow the *Code* (for other examples in amphibians, see Dubois 1999, 2003, 2006b, 2007a–b, 2008, 2011 and Ohler & Dubois 2012).

Furthermore, the use of the term “taxon” alone to designate a new nomen is uninformative, because it does not furnish any information on the rank given to this nomen in an ergotaxonomy. When used in the same work for taxa that are allocated to different nomenclatural ranks, it does not provide any clue on the place given to these taxa in the nomenclatural hierarchy, especially when the term “taxon” is used for some nomina whereas terms pointing to ranks (family, genus, etc.) are used for other nomina designating “sister-groups” of the former ones (pseudoranked nomenclatures; Dubois 2007a).

The difference between taxon and nomen is a very old one in zoological taxonomy and nomenclature, because the nomenclatural system of the *Code* is not intensional or extensional but ostensional (Dubois 2006a, 2007a, 2008). Under this system, a nomen is by no means attached to a definition or to the content of a taxon, but to an *onomatophore* (“name-bearing type”), and can apply to any taxon including this onomatophore, whatever its extension and limits. For example, although it has been used throughout the history of zootaxonomy, the generic nomen *Rana* Linnaeus, 1758, like many others, has been used to designate successively many taxa that differed considerably in extension and intension: in Linnaeus (1758), it designated a taxon that corresponds to the current order **ANURA** Duméril, 1805, whereas in recent works it is used for a much more limited group, although with a quite different extension according to the author and ergotaxonomy at stake (compare e.g. Dubois 2005b and Frost *et al.* 2006).

Therefore, a taxon is not a nomen, and *vice versa*. Of course, in general, the *erection* of a new taxon and the *introduction* of a new nomen (for precise definitions of these terms, see Dubois 2012) are concomitant, the taxon being both recognized and characterized for the first time, and named, in the same work, so that the formula “new taxon” may be warranted in such cases (although formulae like “new tribe” or “new genus” are better because they point clearly to new nomina allocated to precise ranks of the nomenclatural hierarchy). Strictly speaking, three different modes of writing should be used in the three possible situations: “new taxon and new nomen” (when both are new), “new taxon” (when a nomen already exists and can be used for this taxon) and “new nomen” (when the taxon has already been erected but not yet named). A simpler writing consists in using only **nov.** (for the Latin terms *novus*, *nova* or *novum*) after a new nomen (e.g., Dubois & Raffaëlli 2009, 2012), whether proposed for a new or already defined taxon, but not after a new definition or *amendation* (see Dubois 2012) of the taxon pointed to by a nomen.

To come back to the present case, the three plethodontid taxa considered were not new in the works of Vieites *et al.* (2011) and Wake (2012), as they had already been defined in the work of Vieites *et al.* (2007) and mentioned again by Dubois (2008). What was new in these two papers were their *nomina*, and the formula “new taxon” was fully irrelevant and inappropriate here.

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